

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/717,476

AMENDMENTS TO THE SPECIFICATION

Paragraph [0003], delete in its entirety, and replace with the following:

[0003] Since silicon single crystal becomes an ideal elastic body due to the extreme paucity of lattice ~~defect~~defects and since a semiconductor process technology can be applied ~~for~~to it without large modification, much attention is paid to a piezo resistance effect type semiconductor acceleration sensor in which a thin elastic support portion is provided at a silicon single crystal substrate, and the stress applied to the thin elastic support portion is converted into an electric signal by a strain gauge, for example, a piezo resistance effect element, to be an output.

Paragraph [0004], delete in its entirety, and replace with the following:

[0004] As a three-dimensional acceleration sensor, an acceleration sensor has been used, which comprises elastic support arms each of a beam structure formed by a thin portion of a silicon single crystal substrate connecting a mass portion constituted by a thick portion of a silicon single crystal substrate in a center and a frame in its periphery. A plurality of strain gauges are formed in each axial direction on the elastic support arms. In order to sense a small acceleration with an enhanced sensitivity, the elastic support arms are made long and/or thin, or the mass portion that works as a pendulum is made heavy. The acceleration sensor that can detect a small acceleration has led to an excessive amplitude of the mass portion, when subjected to a large impact, and resulted ~~to break-in~~in breaking of the elastic support arms. To avoid the ~~break~~breaking of the elastic support arms even if a massive impact is applied, regulation plates have been installed above and below the acceleration sensor chip to restrict ~~the~~ amplitude of the mass portion ~~within~~to a certain range.

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Paragraph [0009], delete in its entirety, and replace with the following:

[0009] It is an object of the present invention to provide an acceleration sensor in which a regulation plate is fixed onto a support frame of an acceleration sensor chip to restrict the movement of a mass portion of the sensor chip within to a predetermined gap range, in order to control the adhesion area to a predetermined value to prevent a variation of the sensitivity due to the variation of the adhesion area.

Paragraph [0051], delete in its entirety, and replace with the following:

[0051] In the above description, although the recesses are formed in four corners of the upper surface of the thick frame to fill be filled with paste for bonding the upper regulation plate, the recesses may be provided wherever on the upper surface of the thick frame. However, the recesses may preferably be spaced apart from the elastic support arms as far as possible, and they may most preferably be provided on four corners of the upper surface of the thick frame as in the first embodiment.